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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,614	07/17/2003	Kunisato Yamaoka	60188-585	9664

7590 09/15/2004

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EXAMINER

HO, HOAI V

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/620,614

Applicant(s)

YAMAOKA ET AL.

Examiner

Hoai V. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-12,14 and 15 is/are rejected.
- 7) ☐ Claim(s) 3-6 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/17/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. This office acknowledges receipt of the following items from the Applicant:

Information Disclosure Statement (IDS) was considered.

Papers submitted under 35 U.S.C. 119(a)-(d) have been placed of record in the file.
2. Claims 1-15 are presented for examination.

Drawings

3. Figures 9-11 should be designated by a legend such as --Prior Art-- as indicated in page 19, lines 21-25, because only that which is old is illustrated. See MPEP § 608.02(g).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 7-12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Takana et al. U.S. Patent 6023438.

Figures 9 and 10 of AAPA disclose a ferroelectric memory device comprising: a plurality of bit line pairs (BL1, BL2 and BL3, BL4) each of which is composed of first (BL1) and second (BL2) bit lines; a plurality of sense amplifiers (116 and 118) each for amplifying a potential difference across the corresponding bit line pair; a plurality of memory cells (101 and 102) provided for the bit line pairs, respectively, each of the memory cells being composed of a first ferroelectric capacitor (C1) for retaining data and a transistor (T1) whose source is connected to

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a first electrode of the first ferroelectric capacitor and whose drain is connected to the first bit line; a plurality of reference cells (105 and 106) provided for the bit line pairs, respectively, each of the reference cells being composed of a second ferroelectric capacitor (C5) for retaining data and a transistor (T5) whose source is connected to a first electrode of the second ferroelectric capacitor and whose drain is connected to the second bit line; a word line (WL1) connecting gates of the transistors of the memory cells; a reference word line (RWL1) connecting gates of the transistors of the reference cells; a cell plate line (CP1) connecting second electrodes of the ferroelectric capacitors of the memory cells; a reference cell plate line (RCP1) connecting second electrodes of the ferroelectric capacitors of the reference cells; and a control circuit (119) for controlling operations of the memory cells, the reference cells, and the sense amplifiers.

AAPA fails to disclose wherein the control circuit inactivates the reference word line during the drive of the sense amplifiers. However, this limitation was well known in the art at the time the invention was made. For example, Figure 13 of Tanaka discloses wherein the control circuit (fig. 12) inactivates (after T2 of fig. 13) the reference word line (DUMMY WORD LINE) during the drive of the sense amplifiers. It would have been obvious to a person of ordinary skill in the art at the time invention was made to modify AAPA circuit which utilizes the control circuit inactivates the reference word line during the drive of the sense amplifiers as taught by Tanaka because Tanaka suggests that the reference word line is set in the unselected state, and then, the sense amplifier is operated. The parasitic capacitances of the first and second bit lines substantially equal, and the electrostatic capacitances of the bit line pair do not influence on sensing (col. 6, lines 50-56).

6. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. Choi et al. (U.S. Patent 6055200), Hirano et al. (U.S. Patent 6028782) and Koike et al. (U.S. Patent 5671174) disclose a ferroelectric memory device.

Allowable Subject matter

7. Claims 3-6 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Claims 3-6 and 13 include allowable subject matter since the prior art made of record and considered pertinent to the applicant's disclosure, taken individually or in combination, does not teach or suggest the claimed invention having inactivating the cell plate line and the reference cell plate line; inactivating the reference word line; stopping the drive of the switch circuit; and driving the sense amplifiers and combinations thereof as recited in claims.

9. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

10. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02 (b)).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai V. Ho whose telephone number is (571) 272-1777. The examiner can normally be reached on 7:00 AM -- 5:30 PM from Monday through Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



hvh
August 30, 2004



Hoai V. Ho
Primary Examiner
Art Unit 2818